



Name: _____ Index: _____ Reg. No.: _____ Class: _____ Date: _____

UNDERSTANDING FOR..TO..NEXT LOOP

In pseudocode, a FOR loop generally follows this format:

```
FOR variable ← start TO end  
    // Code to be repeated  
NEXT variable
```

Here's what each part means:

- **FOR:** Begins the loop.
- **variable:** A loop counter that keeps track of the number of times the loop has run.
- **start:** The initial value of the loop counter.
- **end:** The final value at which the loop stops.
- **NEXT:** Marks the end of the loop.

Step-by-Step Explanation

1. **Initialize** the loop counter (variable) to the start value.
2. **Check Condition:** The loop will continue as long as the counter is within the range from `start` to `end`.
3. **Execute** the code inside the loop.
4. **Increment** the counter by 1 automatically after each iteration.
5. **Repeat** until the counter reaches the end value.
6. **Exit** the loop once the counter exceeds the end value.

Example 1: Print Numbers from 1 to 5

This example uses a FOR loop to print numbers from 1 to 5.

```
FOR i ← 1 TO 5  
    OUTPUT i  
NEXT i
```

Explanation

1. The loop starts with "i = 1".
2. It checks if "i" is less than or equal to 5. If true, it runs the loop.
3. "OUTPUT i" displays the value of "i".

4. "NEXT i" increases "i" by 1.
5. Steps 2-4 repeat until "i" becomes 6, at which point the loop stops.

Output:

```
1
2
3
4
5
```

Example 2: Sum of First 5 Numbers

This example calculates the sum of numbers from 1 to 5.

```
sum ← 0
FOR i ← 1 TO 5
    sum ← sum + i
NEXT i
OUTPUT sum
```

Explanation

1. "sum" is initialized to 0.
2. The loop starts with "i = 1".
3. In each iteration, "sum" adds the value of "i".
4. "NEXT i" increments "i" by 1.
5. This continues until "i" is 6, after which the loop exits and displays "sum".

Output:

TASK: What will be final output? Show how "sum" value changes after each round.

Example 3: Display Even Numbers from 2 to 10

This example prints even numbers from 2 to 10.

```
FOR i ← 2 TO 10 STEP 2  
  OUTPUT i  
NEXT i
```

Here, “STEP 2” specifies that “i” should increase by 2 in each loop.

Output:

TASK: What will be output of each round? Write the outputs by mentioning the round.

Let's test what you have studied now!!

1. Write a pseudocode program to print the multiplication table of 3 from 1 to 10.

2. Write a pseudocode that prints the first 10 even numbers.

3. Write a pseudocode program to calculate the sum of all numbers from 1 to 5.

4. Write a pseudocode program that asks for 5 numbers as input from the user and calculates their average.